



**DAKE / JOHNSON VERTICAL BAND SAW**

# **Model F - 16**

**INSTRUCTION MANUAL**



**MODEL:**F-16

**SERIAL NUMBER:** \_\_\_\_\_

**DATE PURCHASED:** \_\_\_\_\_

Need band saw blades? Call Dake

DAKE (Division of JSJ)

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# **WARNING!**

**This machine must be wired by a qualified electrician. This machine is designed to be wired for the specified voltage with a tolerance of +/- 10%. If your voltage is outside this 10% it will require a transformer to obtain the correct voltage. Failure to do so may affect warranty, if damage occurs from improper wiring or electrical supply.**

## ***FOREWORD***

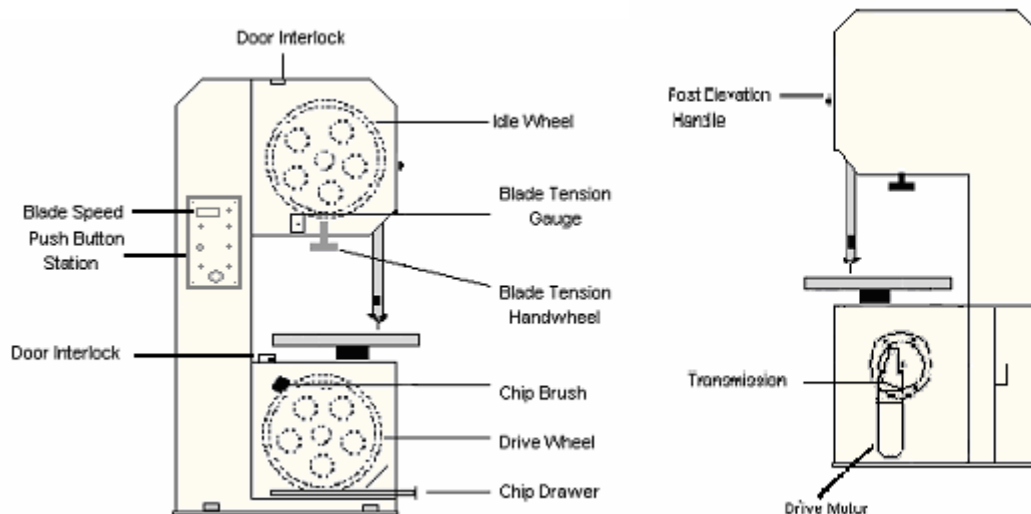
These instructions cover the installation and operation of vertical band saw. We recommend that these instructions be retained by the department or individual responsible for the machine and kept in a readily accessible location for reference purposes.

## **SPECIFICATIONS**

<b>Capacity:</b>		
Throat	Inches	16
Work Height	Inches	11
<b>Table:</b>		
Work Table	Inches	26-3/8 x 26-3/8
Height from Floor	Inches	38
Table Weight Capacity	Lbs.	850
<b>Blade:</b>		
Width Minimum	Inches	1/8
Width Maximum	Inches	5/8
Length Minimum/Maximum	Inches	128/133
Wheel Diameter	Inches	16-1/2
<b>Band Speed:</b>		
Variable Speed	FPM	60-550 sfm
Drive Motor	HP	2
<b>Height of Machine:</b>	Inches	72
<b>Floor Space:</b>	Inches	28 x 18
<b>Shipping Weight:</b>		
Machine Weight	Lbs.	1000

# Machine Features

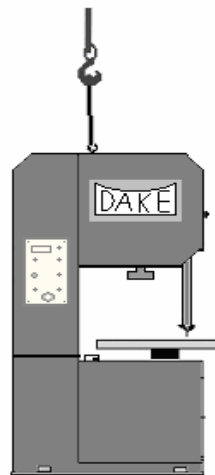
## F - 16



### WARNING!!!

The machine table must **NOT** be used as a lifting point. Damage to the saw could occur.

**UNLOADING:** Remove the shrink-wrap covering the machine, careful not to damage painted surfaces. **Carefully inspect the machine for physical damage. If damage is noted, notify the truck line at once. They may require inspection, and that a claim be filed.** Check that all standard accessories are with the machine. Some accessories may be boxed or placed behind the rear access door. The band saw is provided with a lifting eye that is screwed into the top of the machine (see illustration on next page). This lifting eye may be located in the rear compartment. Particular care should be taken in selecting areas of the machine for handling, as electrical components and adjustment knobs can be marked up or damaged. Remove the mounting bolts holding the machine to the skid, using the lifting eye, remove the machine from the skid and set in designated area.

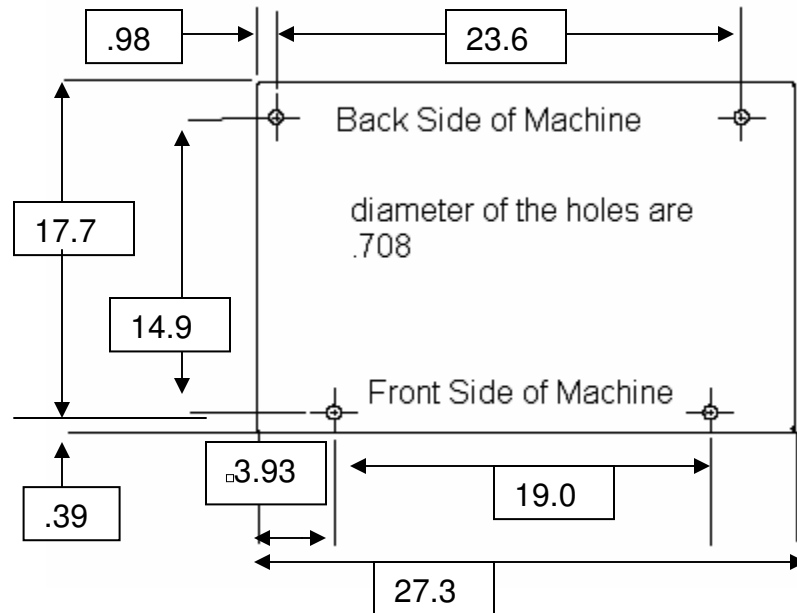


**INSTALLATION:** Location of the machine should be taken into consideration with the ability to move large work pieces. The machine is provided with holes in the base to anchor the unit to the floor. Shims should be used to properly level the unit. The saw is shipped with an anti-rust

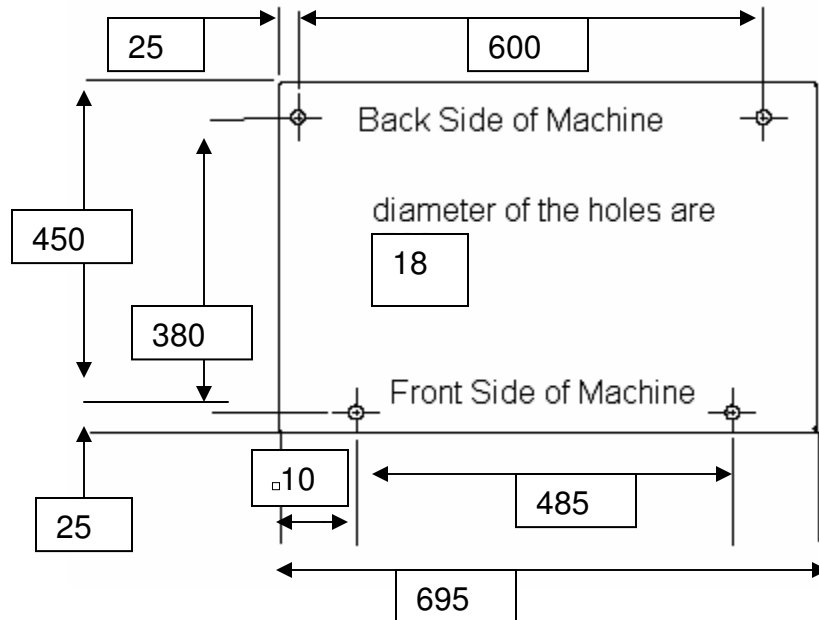
protective coating on machined metal surfaces. These surfaces should be cleaned with the appropriate solvent and then coated with a light film of oil to prevent rust from forming.

## F-16 Foot Print

Below measurement is in inches

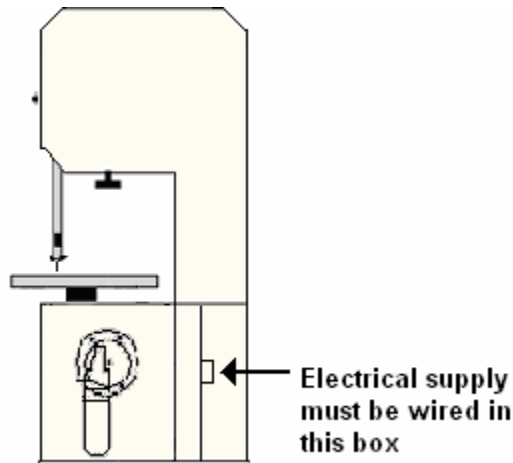


Below measurement is in MM



## **ELECTRICAL:**

To wire this machine there is a small box on the back side of the machine, this is where the machine is wired in (see illustration below).



## **warning!!!**

**Power must be locked out before removing any electrical panel.**

## **WARNING!**

**This machine must be wired by a qualified electrician. This machine is designed to be wired for the specified voltage labeled below with a tolerance of +/- 10%. If your voltage is outside this 10% it will require a transformer to obtain the correct voltage. Failure to do so may affect warranty, if damage occurs from improper wiring or electrical supply.**

To change the machine from 1 phase to 3 phase follow the instructions below.

### **220 Volt 1 Phase**

How to wire for 220 Volt 1 Phase:

1. Connect one lead to L1
2. Connect one lead to L3; this must be the neutral wire.
3. Connect ground wire to ground

### **220 Volt 3 Phase**

How to wire for 220 Volt 3 Phase

1. Connect each wire to L1, L2, L3
2. Connect ground wire to ground

### **440 Volt 3 Phase**

To use 440 volt on this machine a step down transformer is required.  
Dake part number 300674

Prior to performing any cutting with the machine, it is recommended that the personal become familiar with the various controls and accessories.

### **PRECAUTIONS**

- No loose clothing.
- Eye protection must be worn.
- All guards must be in position.
- Table load capacity should be noted and not exceeded.
- Extra supports may be required for large material or components.
- Irregular shapes and small objects should be secured by means of a clamp or suitable fixture.
- Machine and surrounding should be kept free of tools, scrap and foreign objects.
- Machine should be locked out before making any adjustments.
- Gloves must be used when uncoiling, coiling and installing band saw blades.
- Store band saw blades in an area near the machine. This will allow operating personal to use the proper blade for each operation.
- Machine is furnished with electrical door interlocks. These interlocks should periodically be checked for proper operation.

### **BLADE INSTALLATION**

### **WARNING!!!**

**Gloves must be worn when changing the blade.**

## WARNING!!!

**Electrical supply must be locked out when changing the blade.**

Blade selection is based on the many factors and complexity of the work to be cut.

The blade placed on the band wheels with teeth facing toward the operator and down toward the top of the worktable. Tension the blade to remove slack. Rotate the wheels by pushing the jog button to ensure tracking is correct, and blade will not “pop” off when machine is started. If tracking is incorrect, adjust before starting machine.

### BLADE TRACKING

Note: This alignment is factory set, but may need an adjustment after replacing the blade.

This machine has a bottom wheel that drives the saw blade and a top idle wheel that is adjustable to facilitate blade tracking. The edges of the wheels are fitted with a composite material to accommodate the tooth set.

First remove the blade tension by loosening the black hand wheel. The idle wheel may be adjusted by loosening the silver knurled locking collar and turning the black knob in the center of the wheel. Turning the knob in a **clockwise** manner runs the blade toward the **back** edge of the band wheel. A **counter clockwise** movement will move the blade toward the **front** edge of the band wheel (see picture on below).

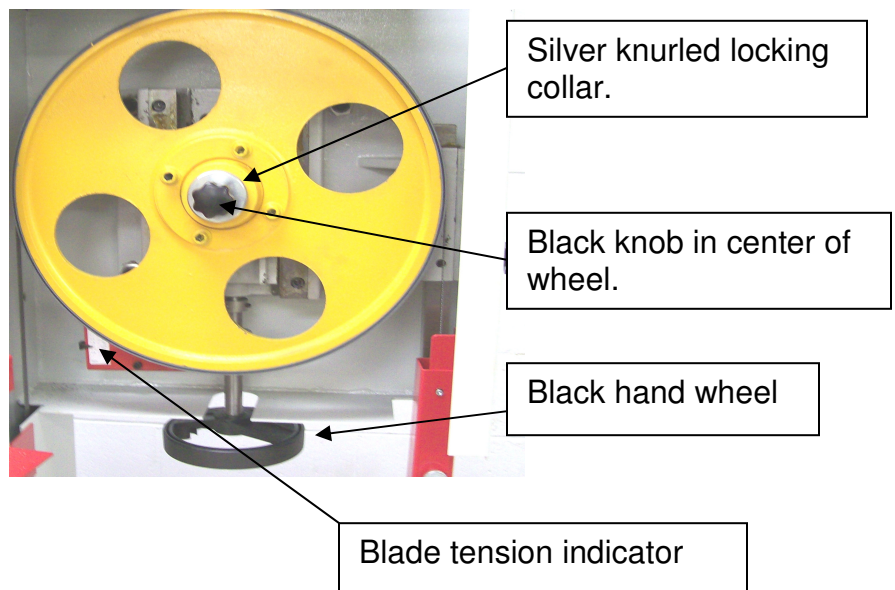
## WARNING!!!

**Before performing the procedure below be sure the wheel safety doors are closed.**

To rotate the wheel to find out where the blade is on the wheel, be sure both wheel doors are closed and push the power start button then turn the run / jog button to jog, now push and hold or push the jog button to rotate the blade slowly. This will help identify which way to adjust the wheel adjustment.

**Correct tracking takes place when the blade runs approximately in the center of the wheel.**

NOTE: The main casting with adjusting screws have been preset at the factory during assembly utilizing special fixtures. No adjustment should be attempted.



## BLADE TENSIONING

The blade indicator is located inside the upper wheel compartment, on the lower left side of the idle wheel. (See picture above) The indicator has an arrow mounted on the horizontal plane, with a corresponding scale for blade tensioning. The scale has two legends, one reads inches from 0 - 1", and the second reads mm 0 - 25 mm. This allows tensioning either standard or metric blade widths.

With out tension on the blade, the indicator should read zero. As tension is applied to the blade the needle will move accordingly, and should be tightened until the correct blade width is indicated on this gauge. Example: Installing a 1/2" blade on the machine, tighten the hand wheel until the indicator's arrow is pointing to the 1/2" mark on the scale. Before starting the machine, check the blade tracking by pushing the jog button for one or two seconds.

This indicator has been calibrated at the factory. If recalibration is ever needed follow the steps below:

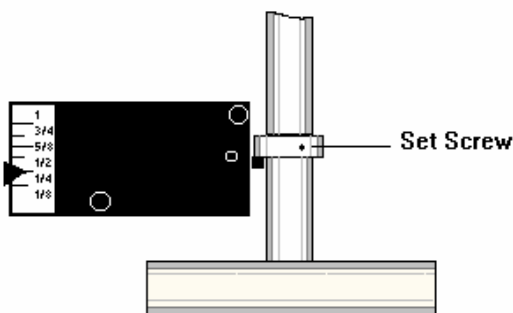


Figure 6

Using a blade tension gauge, (many times the company that you purchase blades from can furnish you with this gauge) tension the blade to the proper PSI. The PSI will vary from blade types (carbon, Bi-metal) and blade widths. This information can be obtained from your blade supplier. When proper tension is achieved, loosen the setscrew in the collar on the tensioning wheel shaft. (See figure 6 above) Adjust this collar up or down on the shaft until the arrow is pointing to the corresponding blade width. On the indicator. Tighten setscrew.

***Note: It is better to over tension the blade than to run it under tensioned.***

## BLADE GUIDES

### WARNING!!!

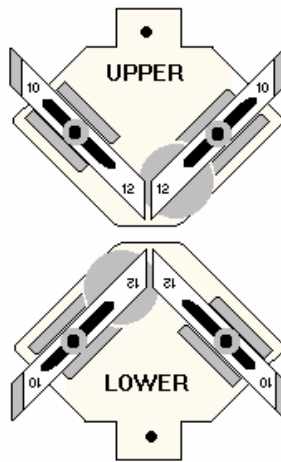
**Gloves must be worn when handling or adjusting the blade guides.**

### WARNING!!!

**Electrical supply must be locked out when adjusting or changing blade guides.**

Your machine has come equipped with a set of interchangeable "V" type blade guides. A set of guides consist of two each left hand and two each right hand guide inserts. The standard guides furnished are 10 / 12 mm guides. Other sizes are optional, and can be purchased separately, or as a five piece set. The five-piece set includes 3 / 4 mm (1/8 - 1/4") 6 / 8 mm (5/16 - 3/8") 10 / 12 mm (standard set 1/2 - 5/8") ***the blade width will dictate the size blade guide to be used.***

***Note: Never use blades larger than the rated capacity of the machine. Never use blades narrower than guide insert. Damage will occur to guide insert and blade. Blade insert must correspond with blade width.***

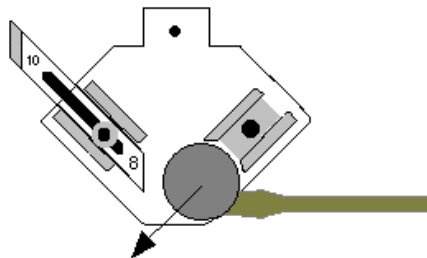


The blade should always be inspected before installing on the machine. Things to look for should be the smoothness on the sides and back edge of the weld, look for any missing teeth, or impacted chips. The blade guides may now be selected and inserted into both the upper and lower guide holders. Proper adjustment of these guides takes place when they form a complete “V” shape (see graphic above) and support the blade equally on each side. A couple of thousands on each side of the blade will provide the running clearance and support for contour sawing.

***Note: Chips should be removed from the blade guides during each blade change or more frequently if required.***

## BLADE GUIDES




The back end roller that supports the back of the blade on each guide holder contains a hardened cap over a set of ball bearings. This should be checked periodically for free movement so it is allowed to rotate freely as the back of the blade comes in contact with the face of this roller. Noticeable friction in this assembly indicates it should be replaced. This can be done by removing the right hand guide insert, moving the left hand guide up away from the bearing face. Loosen the setscrew on the bottom of the guide holder and sliding the old bearing and shaft out and a new one in. Tighten the setscrew and re-adjust the guides. See graphic below.



The “V” type solid blade guides and holder assemblies as furnished standard with the machine and are recommended for the majority of cutting applications.

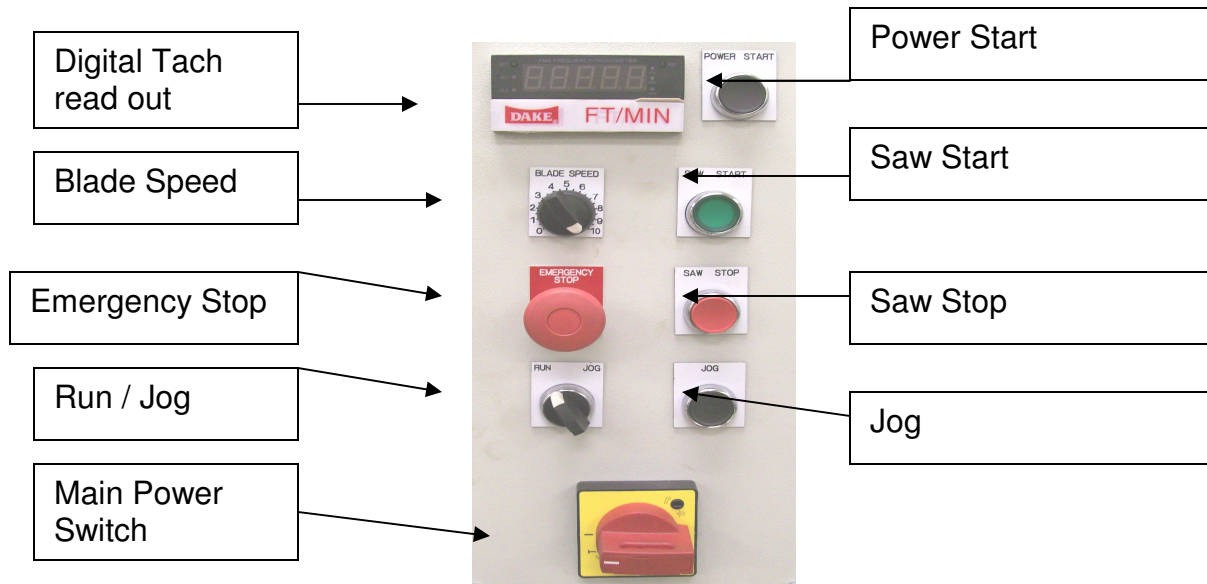
## BAND SPEED SELECTION

The saw blade is driven by a direct drive transmission. On the front panel you will see the surface feet per minute read out (see chart for proper blade selection).

	MATERIAL SHAPE	MATERIAL SHAPE	MATERIAL SHAPE
MATERIAL IN			
INCHES	TOOTH SELECTION	TOOTH SELECTION	TOOTH SELECTION
0	14 / 18	14 / 18	14 / 18
.1	14 / 18	14 / 18	14 / 18
.2	14 / 18	14 / 18	14 / 18
.3	10 / 14	14 / 18	10 / 14
.4	8 / 12	10 / 14	8 / 12
.5	8 / 12	8 / 12	6 / 10
.6	6 / 10	8 / 12	5 / 8
.7	6 / 10	6 / 10	5 / 8
.8	5 / 8	6 / 10	5 / 8
.9	5 / 8	5 / 8	5 / 8
1	5 / 8	5 / 8	4 / 6
1 1/4	4 / 6	5 / 8	4 / 6
1 1/2	4 / 6	4 / 6	4 / 6
1 3/4	4 / 6	4 / 6	4 / 6
2	4 / 6	4 / 6	3 / 4
2 1/4	4 / 6	4 / 6	3 / 4
2 1/2	3 / 4	4 / 6	3 / 4
2 3/4	3 / 4	4 / 6	3 / 4
3	3 / 4	3 / 4	3 / 4
3 1/4	3 / 4	3 / 4	3 / 4
3 1/2	3 / 4	3 / 4	3 / 4
3 3/4	3 / 4	3 / 4	2 / 3
4	3 / 4	3 / 4	2 / 3
5	2 / 3	3 / 4	2 / 3
6	2 / 3	3 / 4	2 / 3
7	2 / 3	2 / 3	1.4 / 2.5
8	1.4 / 2.5	2 / 3	1.4 / 2.5
9	1.4 / 2.5	2 / 3	1.4 / 2.5
10	1.4 / 2.5	1.4 / 2.5	1.4 / 2.5
11	1.4 / 2.5	1.4 / 2.5	1.4 / 2.5

## Machine Operation

Look over the control panel to get familiar with the buttons before operating (see picture below).



**Digital Tachometer Read out:** This will show the blade speed in surface feet per minute.

**Blade Speed:** This controls the speed of the blade 50-550 sfm.

**Emergency Stop:** When this button is pushed it will shut all power off to all components. **Do not push this button for non emergency stopping.** This button is not intended for turning the machine off on a daily basis.

**Run / Jog:** Switch this to run when the machine is being used. Switch this to jog when you need to slowly move the blade to make adjustments for the blade tracking. After switching this to jog use the jog button to slowly move the blade.

**Main Power Switch:** This is the main power to the machine. Switch this off when the machine is not in use. Switch this to on to turn the main power on.

**Power Start :** This is used to turn on the power after turning on the main power; it will put power to all electrical components.

**Saw Start :** This will start the saw blade motor when pushed.

**Saw Stop :** This will stop the Saw blade motor when pushed.

**Jog :** When this is pushed then released the motor will come on and then shut off. This feature is used only when adjusting the tracking.

# MACHINE OPERATION

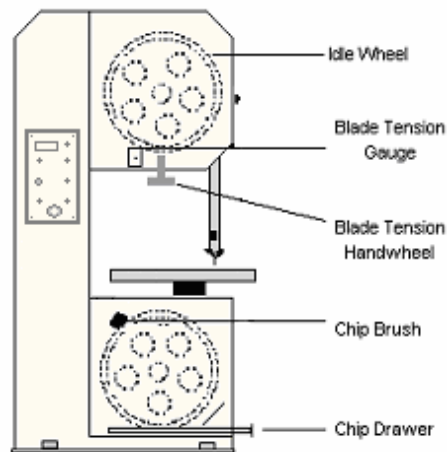
To operate the machine, do the following:

1. Turn the **main power** on, and then push the **saw power button**.
2. Now **turn the run jog button to run**, and then push the **saw start button**. The saw blade will begin to move at the designated speed that is selected.
3. To change the blade speed, turn the blade speed knob to the desired speed by turning left or right. It will take about 3 seconds for the digital tac to read the correct speed.
4. To stop the saw blade push the saw blade stop button.
5. To turn the machine off turn the main power switch to off.

## MACHINE MAINTENANCE

The maintenance of the machine is naturally based on the usage rather than a time element. The following is a recommendation based-on-average usage, and adjustment to the frequency can be made on an individual basis. See below graphic for locations.

- **Chip Pan:** Clean as required
- **Band wheel tires:** Remove embedded chips weekly, replace banding as necessary.
- **Blade guide assemblies:** Clean weekly
- **Gear box:** Maintenance free
- **Blade tension assembly:** Clean weekly



## ACCESSORIES

Rip Fence Part number 81521

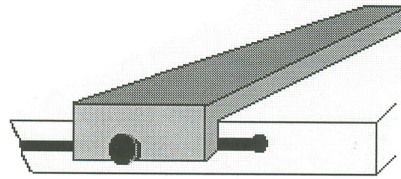


Fig. 2

## PROTRACTOR HEAD

See figure 4 part number 75561

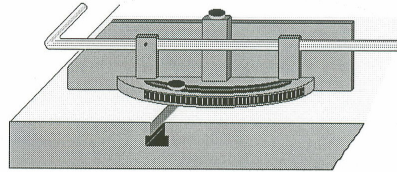
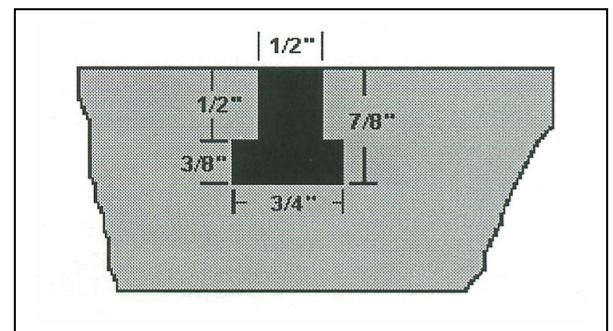


Figure 4

## T-SLOTS

T-slots are machined into the work table for your use of fixturing or other accessories. The dimensions of these T-slots are furnished to the right.



## How to program the frequency drive.



1. Please see the electrical print for the parameter list.  
(This is factory set and will only need to be adjusted if the unit is replaced)

## How to program the digital speed display

(This is factory set and will only need to be programmed if the unit is replaced)

1. Press and hold the set button (top left corner) until the display shows Fun

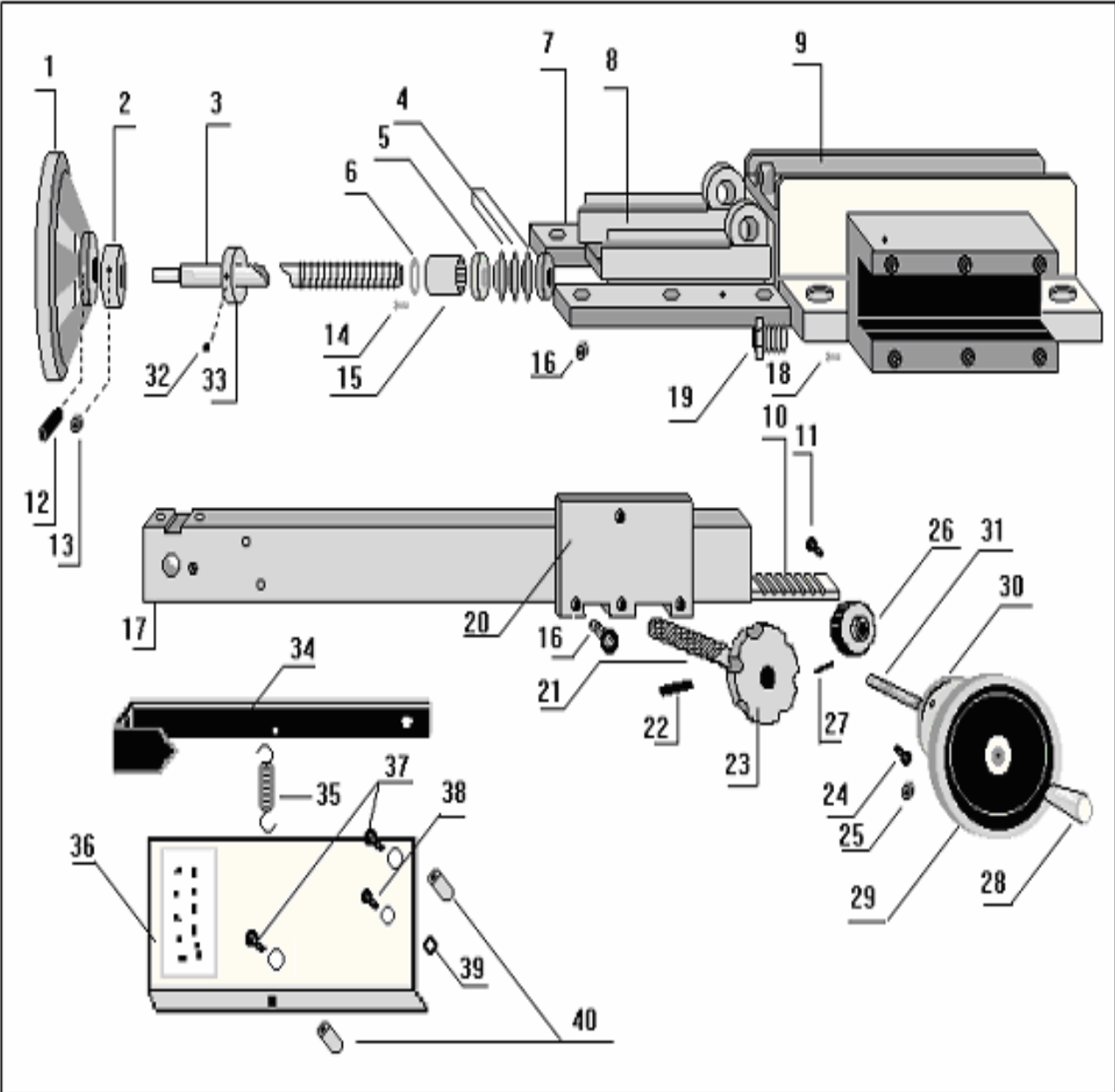


2. Push the set button one time, the display will read rPS . If the display does not show rPS then push the "RST" button until the display shows rPS.
3. Press the set button one time, the display will read "P".
4. Now, open the cover below the digital display and input the numbers 25400
5. Press the set button then RST until the decimal is between the 4 and the 0, now press the set button and the display will read



6. Push the set button one more time and the display will read "99999" now, push the RST button until no decimal points are displayed.
7. Push set one more time, it should read "rd15". If not push the RST button until it does read "rd15".
8. Push set 4 more times. Now the display will read correctly.

### TOP BRACKET & BLADE TENSION ASSEMBLY- FIGURE 1.1



**Figure 1.1**

<b>ITEM</b>	<b>PART NAME</b>	<b>PART NO.</b>	<b>F-16</b>
1	Hand wheel	81529	1
2	Adjusting Wheel Collar	81530	1
3	Spindle	81532	1
4	Crown Spring	81534	6
5	Axial Bearing	81536	1
6	Spacer	81538	1
7	Lath Gib	81540	2
8	Carriage	81542	1
9	Carriage Lower Portion	81544	1
10	Rack	81546	1
11	Screw 4mm x 16mm	81548	2
12	Pin	81549	1
13	Set Screw 6mm x 10mm 8 pitch	80529	1
14	Flat Head Screw 4mm x 6mm	81551	2
15	Needle Bearing K20x24x17	81552	1
16	Screw 8mm x 20mm	80521	9
17	Guide Post	81555	1
18	Set Screw 10mm x 20mm	81560	1
19	Threaded Sleeve	81558	4
20	Plate	81561	1
21	Handle Bolt	81563	1
22	Roll Pin	81654	1
23	Star Handle	81565	1
24	Cap Screw 6mm x 12mm	80625	3
25	Set Screw 6mm x 10mm 8 pitch	80529	1
26	Gear	81566	1
27	Roll Pin	81568	1
28	Handle	80501	1
29	Hand Wheel	80500	1
30	Flange	81569	1
31	Hand Wheel Adjusting Bolt	81570	1
32	Tension Collar Set Screw		1
33	Tension Indicator Collar		1
34	Tension Indicator Pointer Rod	81973	1
35	Indicator Pointer Return Spring	716500	1
36	Indicator Plate		1
37	Mounting Bolts		1
38	Pivot Bolt		2
39	Pivot Bolt Nut		1
40	Plate Spacers		2
	V-16 Bracket Assembly		1

## Tracking band wheel assembly 1.2

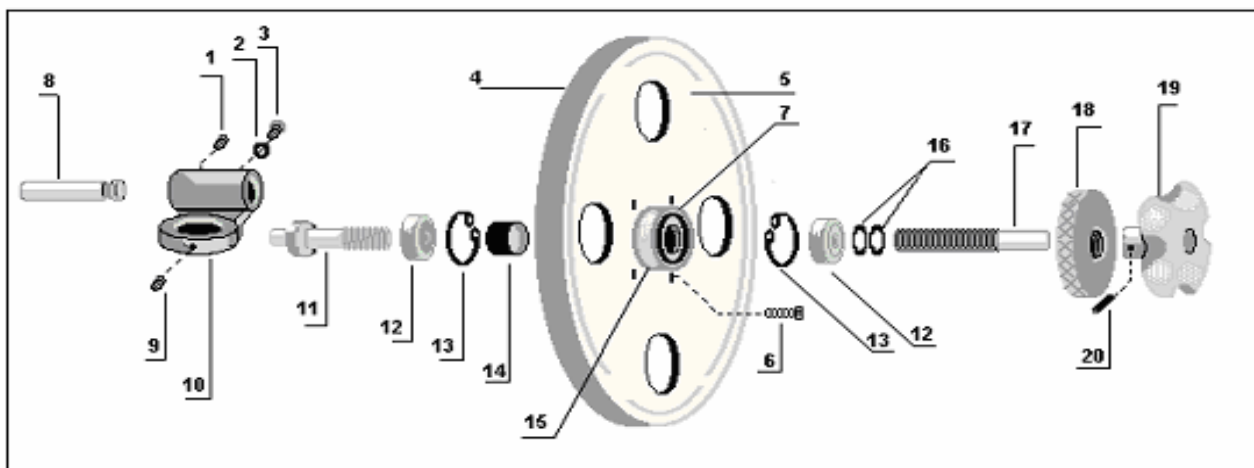


Figure 1.2

ITEM	PART NAME	PART NO.	
	Complete Assembly	716501	1
1	Screw 8mm x 10mm	81571	2
2	Jam nut 8mm	91573	1
3	Set Screw 8mm x 25mm	81574	1
4	Nylon Bandage (80540)	714834	1
5	Upper Band Wheel	80618	1
6	Cap Screw 8mm x 25 mm	81575	4
7	Flange	80650	1
8	Special Pin 88mm x 16mm dia	81577	1
9	Set Screw 8mm x 16mm	81572	1
10	Adjuster Casting	81579	1
11	Shoulder Bolt	81581	1
12	Bearing 62042	80685	2
13	Snap Ring	5136-00	2
14	Spacer 20.7mm IDx25mm OD 18.5mm	81586	1
15	Flat Washer 5/16" x 1/16" Thick	43632	4
16	Shaft Nut	81588	1
17	Screw (Special)	81590	1
18	Nut (Special Knurled)	81592	1
19	Adjusting Hand Wheel	81595	1
20	Roll Pin	81594	-

# TABLE ASSEMBLY

## FIGURE 2.1

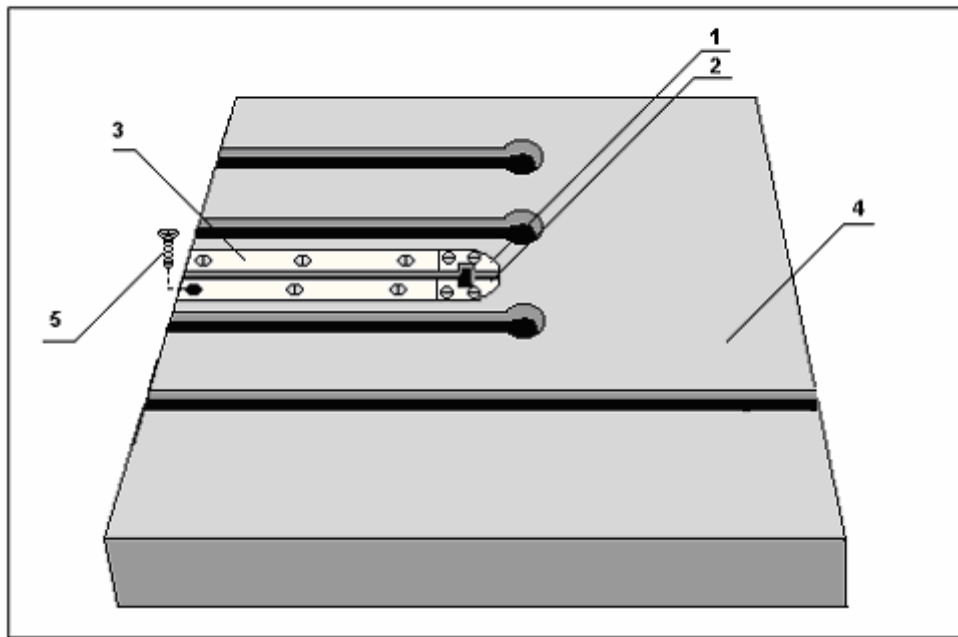
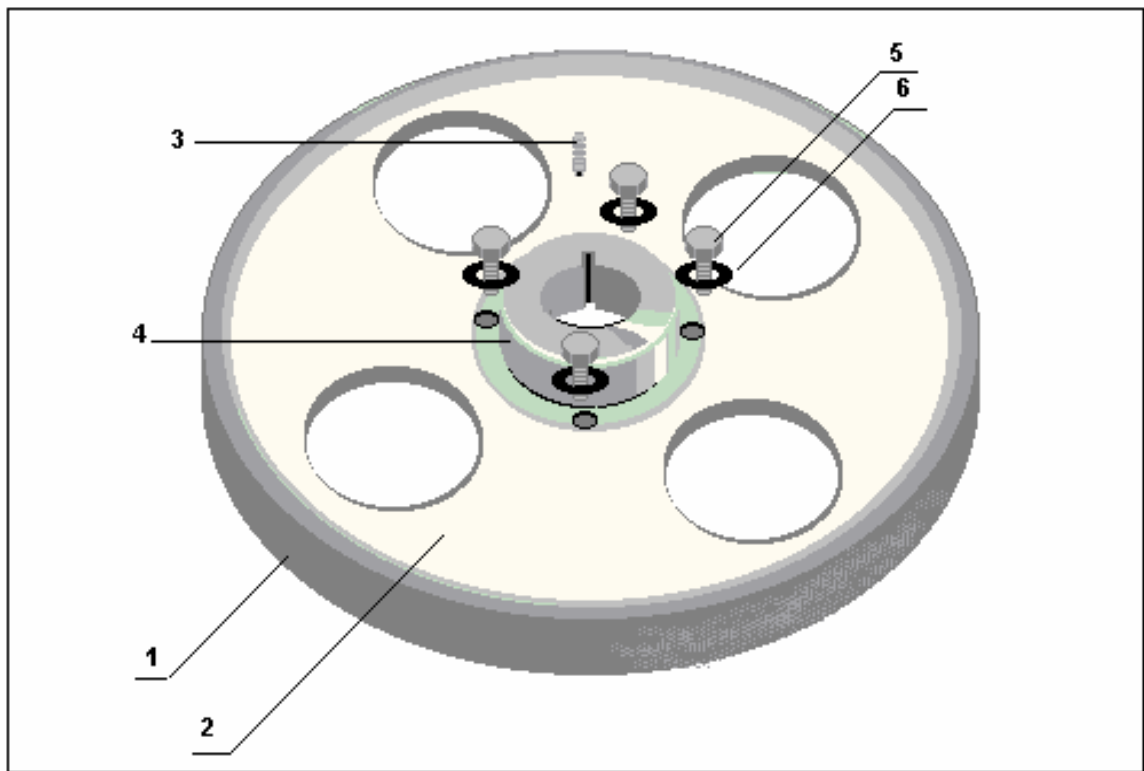


Figure 2.1

ITEM	PART NAME	PART NO.	V/E-16
1	Table Insert (Left Rear)	81597	1
2	Table Insert (Right Rear)	81598	1
3	Table Insert	81792	1
4	Table Casting	81700	1
5	Cap Screw 4mm x 12 mm	81701	10
6	Adaptor Plate	301843	1
7	Table Bolts M10 1.5 x 25mm	78758	4
8	Frame Bolts M10 1.5 x 50mm	78729	4
9	Adjustor		4
10	Lock washer	43642	4
11	Washer	71060	4

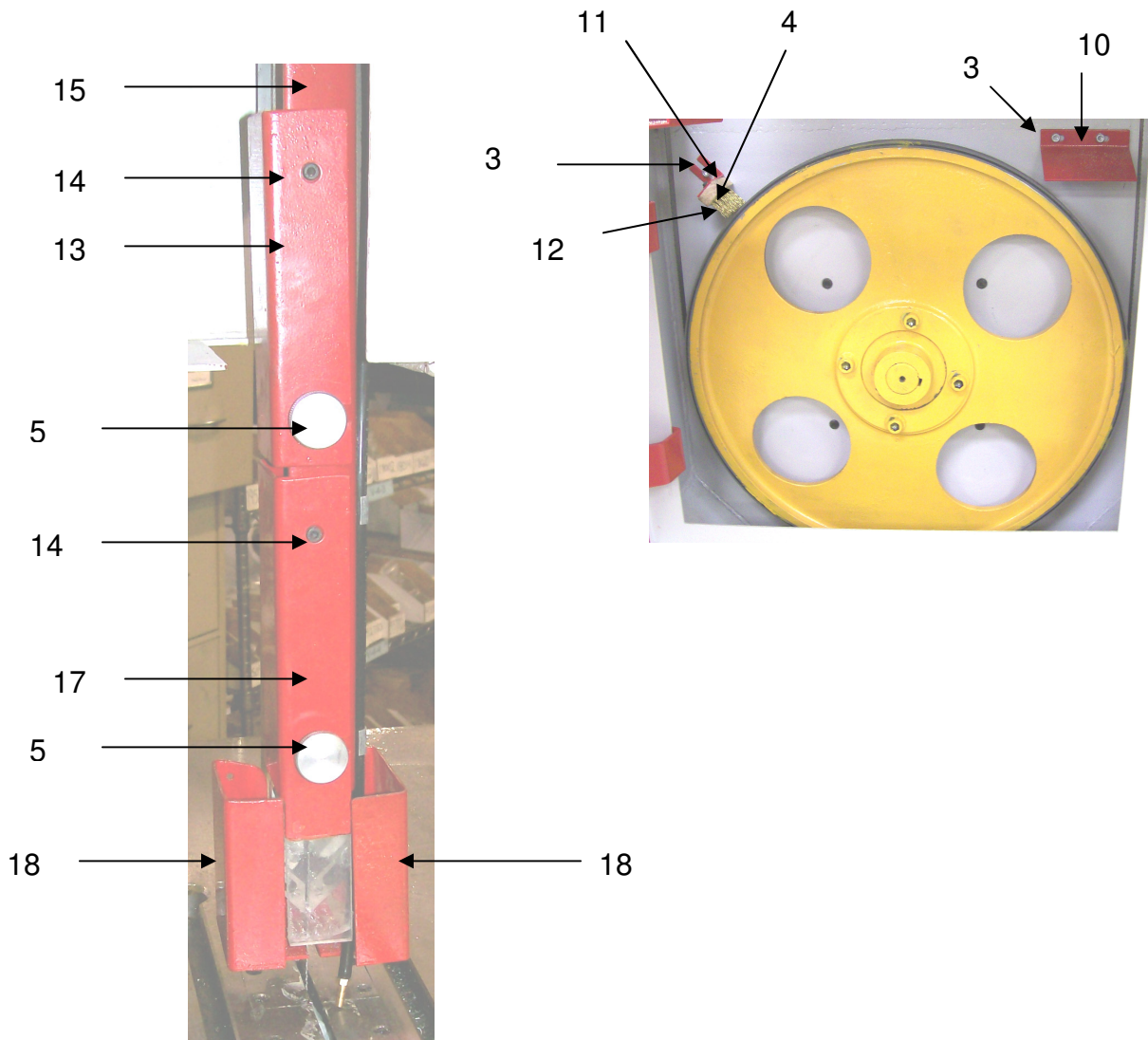
## LOWER WHEEL WITH FLANGE - 3.7



Lower Wheel assembly 3.7

ITEM	PART NAME	PART NO.	V/E-16
1	Band Wheel Cover – Sold as 714834x	80540	1
2	Band Wheel Casting	80618	1
3	Set Screw	81863	1
4	Flange	81865	1
5	Washer 5/16" x 1/16" thick	43632	4
6	Cap Screw 8mm x 25mm	81575	4
	Complete Wheel Assembly	714834X	1
Not shown	Wheel magnet	301834	1
Not shown	Proximity switch	301833	1

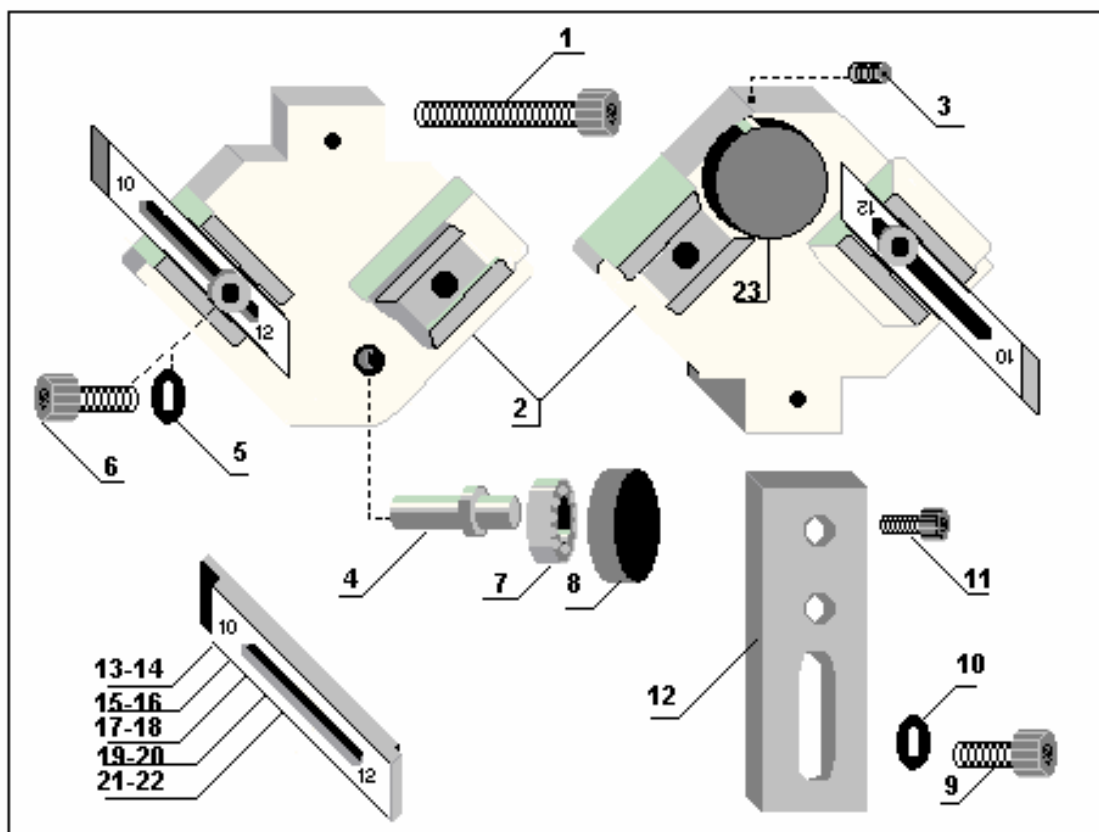
## Blade guard assembly 4.6



Blade guard assembly 4.6

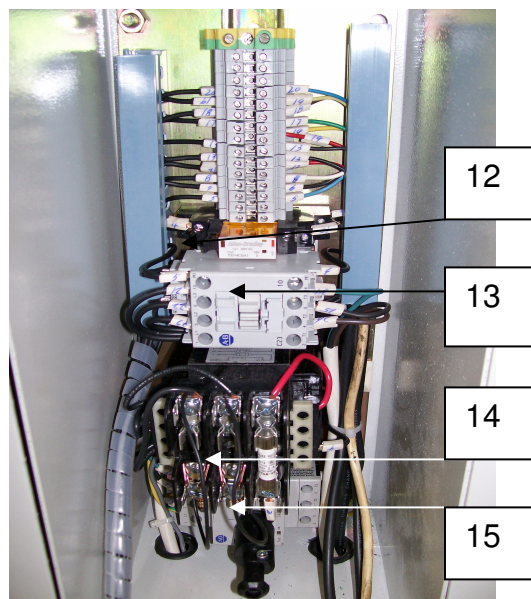
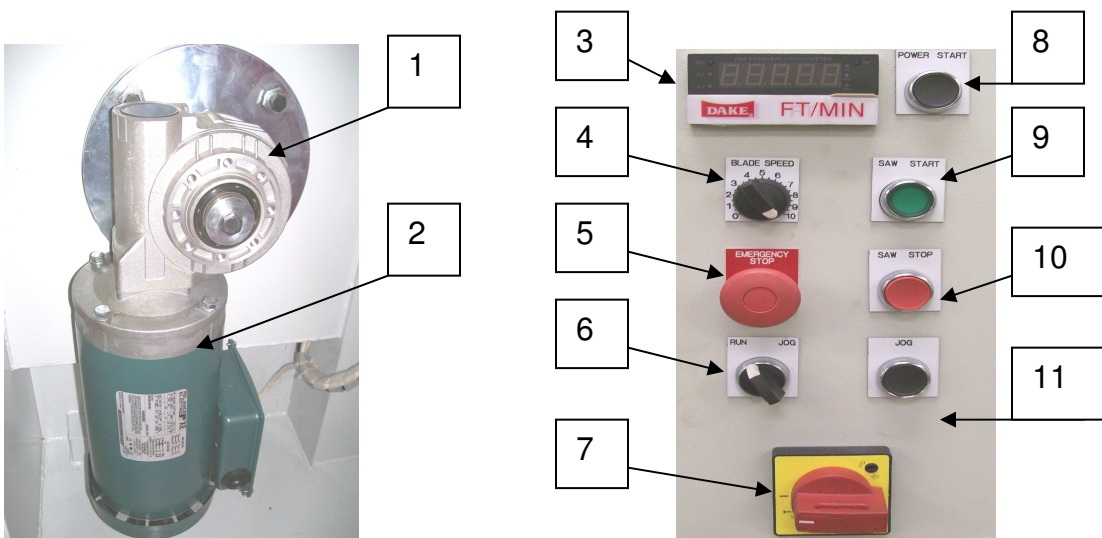
Item #	Part #	Part Description	Qty.
3	81926	Brush bolt	1
4	81924	Wood screw	2
5	81526	Knurled thumb screw	2
10	81929	Chip guard	1
11	81930	Brush holder	1
12	81931	Wire chip brush	1
13	81932	Upper blade cover	1
14	81933	Alignment screws	2
15	81934	Blade guard body	1
15B	80625	Blade guard mounting bolts	2
17	78206	Lower blade cover w/Plexiglas	1
18	86589	Side blade guards	2

## BLADE GUIDE ASSEMBLY - FIGURE 4.8



Blade Guide Assembly 4.8

Item #	Part Name	Part #	Qty.
1	Cap Screw	81781	2
2	Blade Guide Holder	81935	2
3	Set Screw	81936	2
4/7/8	Rear Bearing Guide Assembly	80586	2
5	Washer	81938	4
6	Cap Screw	64179	4
9	Cap Screw	80521	1
10	Washer	43632	1
11	Cap Screw	81707	2
12	Lower Guide Mounting Plate	81941	1
13/14	Guide Inserts (Optional) 3mm/4mm	714816	2
15/16	Guide Inserts (Optional) 6mm/8mm	714817	2
16/17	Guide Inserts (Standard) 10mm/12mm	714818	2
17/18	Guide Inserts (Optional) 16mm/20mm	714819	2
19/20	Guide Inserts (Optional) 25mm/32mm	714820	2
	High Speed Roller Guides	81969	1 set
	Upper & Lower Guide Assembly (Items 1-8)	714838A	1



Item #	PART NAME	PART NO.	Qty
1	Gear box	301663	1
2	Motor Single Phase and 3 phase	301665	1
3	Digital read out	301832	1
4	Blade Speed Dial	301666	1
5	Emergency Stop Button	716538	1
6	Run / Jog Switch	716544	1
7	Main Power switch w / motor protection	301781	1
8	Power Start Button	716542	1
9	Saw Start Button	716540	1
10	Saw Stop Button	716539	1
11	Jog Button	716543	1
12	Relay	301776	1
12	Relay socket	301775	1
13	Contactor	301777	1
14	Fuse 2 amp	77523	2
14	Transformer and Fuse Holder	301778	1
15	Switch	301789	1

### Items not shown on gear box assembly

	Washer	70270	2
	Bolt	81505	2
	Shaft	87121	1
	Bearing	301810	1
	Outboard Support	87131	1
	8mm x 35mm	301811	4
	8mm x 65mm	301812	4
	Key	81851	1
	Key 1/4 x 1/4 x 4"	301818	1
	Door Handle	301779	
	Shaft Extension	301780	1
	Fuse 2 amp	72633	2
	Fuse 5 amp		1
	Frequency drive	301886	1

